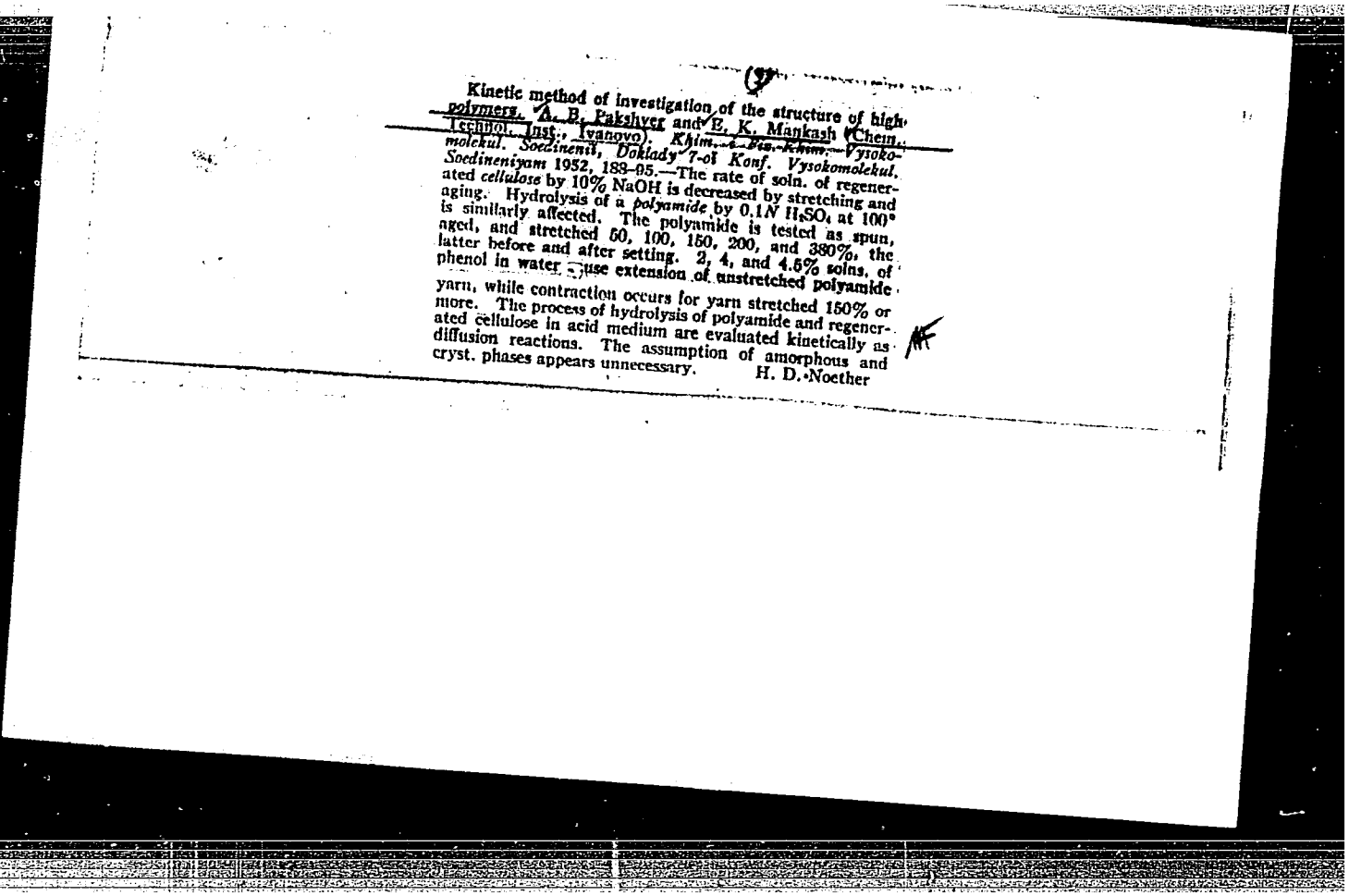

Kinetic method of investigation of the structure of high-polymers. A. B. Pakshver and E. K. Mankash (Chem.-Technol. Inst., Ivanovo). *Khim. i Fiz.-Khim. Vysokomolekul. Soedinenii, Doklady 7-oi Konf. Vysokomolekul. Soedineniyam* 1952, 189–95.—The rate of soln. of regenerated *cellulose* by 10% NaOH is decreased by stretching and aging. Hydrolysis of a *polyamide* by 0.1*N* H_2SO_4 at 100° is similarly affected. The polyamide is tested as spun, aged, and stretched 50, 100, 150, 200, and 380%, the latter before and after setting. 2, 4, and 4.5% solns. of phenol in water cause extension of unstretched polyamide yarn, while contraction occurs for yarn stretched 150% or more. The process of hydrolysis of polyamide and regenerated cellulose in acid medium are evaluated kinetically as diffusion reactions. The assumption of amorphous and cryst. phases appears unnecessary. H. D. Noether

USSR/Chemistry - Synthetic Fibers Mar/Apr 52

"Change of the Viscosity of Polyamide Fibers During Heterogenous Hydrolysis in an Acid Medium," A. Pakshver, Ye. Mankash, Ivanovo Chem Tech Inst

"Kolloid Zhur" Vol XIV, No 2, pp 112-117

Change of mol wt and destruction of polyamide fibers under heterogenous conditions in an acid medium has been described by the eq of Rotinyan and Drozdov ("Zhur Obshch Khim" Vol XIX, p 1843, 1949), by which changes of the rate of fission of amide bonds are expressed as a function of

216T14

diffusion just as in investigating the rate of hydrolysis of high polymers with destruction and change of mol wt, the presence of a multi-phase amorphous and cryst fiber structure need not be assumed. The kinetic eq permits estimation of the mol structure of high-mol fibers.

MANKASH, YE.

216T14

Chemical Abst.
Vol. 48 No. 8
Apr. 25, 1954
Dyes and Textile Chemistry

3

(2)

Change of viscosity of polyamide fibers during heterogeneous hydrolysis in acid medium. A. P. Pakshver and E. K. Mankash. *Colloid J.* (U.S.S.R.) 14, 125–30(1952) (Engl. translation).—See *C.A.* 46, 7774e. H. L. H.

MANKASH, E.K.

USSR,

Research on the structure of high-molecular compounds. I. Modification of the length of the polyamide fiber in aqueous phenol media. E. K. Mankash and A. B. Paksiver. *J. Appl. Chem.* [illegible] (1955) (Engl. translation). II. Coefficient of internal diffusion in aqueous phenol media. *Ibid.* 759-62.—See C.A. 48, 14217b. III. Dyeing of polyamide fiber by acid dyes. *Ibid.* 859-903.—See C.A. 47, 12820h. IV. Absorption of naphthylaminesulfonic acids by polyamide silk. G. A. Myagkova, A. B. Paksiver, and S. S. Frolov. *Ibid.* 913-16.—See C.A. 47, 12820c. V. Effect of the pH of the medium on dyeing of polyamide fiber. E. K. Mankash and A. B. Paksiver. *Ibid.* 1161-5.—See C.A. 48, 3081f.

H. L. H.

MANKASH, E. K.

Structure of macromolecular compounds. I. Modification of the length of polyamide fibers in aqueous phenol media. B. K. Mankash and A. B. Pakshver (Chem.-Tech. Inst., Ivanovo). *Kolloid. Zhur.* 16, 830–4 (1953).—Segments of drawn and undrawn polyamide filaments, 20 cm. in length, were immersed in aq. PhOH solns. at 20° and swelling and length changes were measured. The deviation of the mol. configuration of the drawn filament from the max. coiling in the swollen undrawn filament is represented by $S = L_0 - l_0$, where L_0 is the percentage change in length based on the original length of the undrawn filament and l_0 the percentage change in length based on the original length of the drawn filament. $x = k\sqrt{t} = k'l/L_0$, where x is thickness of layer penetrated in time t and k depends on concn. and coeff. of diffusion. Data for swelling in 2% PhOH are presented graphically as l/l_0 vs. $\sqrt{t}$; values of k and % of drawing of filaments are, resp., 0.17, 260; 0.51, 87; 0.62, 32; —, undrawn. When filaments are heated for 5 hrs. or 2 hrs. at 160° or not heated before immersion the values of k are, resp., 0.38, 0.52, 0.65. For undrawn filaments in 2, 3, or 4% PhOH the values of L_0, S, and k are, resp., +16.5, 0, 0.83; +16.5, 0, 1.20; +16.5, 0, 1.65; for filaments drawn 260%, −13.5, 20, 0.16; −17.0, 33.5, 0.72; −36.5, 63, 1.35. Similar data are given for filaments drawn 32, 87, and 182%. Values of k are given for undrawn filaments heated at 120, 150, and 160° for 0, 0.5, 1.0, 2.0, and 5.0 hrs. before immersion: k, 0.64 (unheated); 0.26 (5 hrs. at 160°). II. Coefficient of internal diffusion in aqueous phenol media. *Ibid.* 835–9.—Since drawing or heating the filament before immersion lowers k it is concluded that these procedures increase the d. of the filament. Values for the coeffs. of diffusion ($D \times 10^8$/sq. cm./sec.) of PhOH into undrawn, "unextd." filaments in 2, 3, or 4% aq. PhOH are, resp., 97.0, 203.0, 380.0; into filaments drawn "260%" and "extd.," 1.03, 20.8, 73.3; into filaments drawn 32, 87, 182, and 260%, 21.8, 19.2, 6.98, 4.12. For drawn fibers not "extd.," coeffs. of diffusion after heating in oil, before immersion in PhOH soln., for 0.33, 1.0, and 2.0 hrs. at 120° were, resp., 42.3, 37.5, 28.2; 0.5, 1.0, 2.0, and 5.0 hrs. at 150°, 17.2, 11.8, 11.8, 14.3; 0.5, 2.5, and 5.0 hrs. at 160°, 17.2, 12.6, 9.5. Values are also given for diffusion coeffs. as function of temp. of aq. PhOH solns. J. P. Danehy

MANKASH, YE.K.

Chemistry - Physical

Chem 5

1761* Coefficient of Internal Diffusion in a Water-Phenol Medium. (Russian.) E. K. Mankash and A. B. Pakshver. Zhurnal Prikladnoi Khimii, v. 26, no. 8, Aug. 1953, p. 835-840.

Elongation of a polyamide fiber strengthens the intermolecular reaction between the amide bonds of adjacent molecules and hinders internal diffusion deep in the fiber. Tables, graphs. 3 ref.

8-31-54 gfb

MANKASH, Ye.K.; PAKSHVER, A.B.

Dyeing of polyamide fibers with acid dyes. Zhur.prikl.khim. 26 no.9:976-981 S '53. (MLRA 6:10)

1. Ivanovskiy khimiko-tekhnologicheskiy institut. (Dyes and dyeing--Nylon)

MANKASH, E. K.

Research on structure of high-molecular compounds. V. Effect of the pH of the medium on dyeing of polyamide fiber. E. K. Mankash and A. B. Pakshver (Chem. Technol. Inst., Ivanovsk). Zhur. Priklad. Khim. 26, 1200-4(1953); cf. C.A. 47, 12820e.--The diffusion coeff. and the apparent activation energy involved in dyeing of polyamide fiber with acid dye Cyanol Extra and in treatment of the fiber with BzOH are of the same order of magnitude as obtained by other authors for dyeing of wool and protein materials. The diffusion coeff. in dyeing is affected by pH, temp., and structure of the fiber. At pH 2, owing to hydrolytic reactions, equil. is not attained in dyeing and the amt. of absorbed dye constantly increases. As the pH of the bath rises to 4 from 2, the amt. of dye taken up at any time increases (curves shown). As this takes place, the diffusion coeff. increases slightly; lowering of temp. sharply reduces the diffusion coeff. The amt. of absorbed dye is smaller for stretched polyamide fiber than for unstretched (unoriented) specimens, the difference being about 0.1%. The activation energy of dyeing ranges from 15,600 cal./mole at pH 2 for unstretched fiber to 19,700 at pH 4; for stretched fiber it ranges similarly from 18,300 to 14,000. At pH 7 both fibers give a value of 19,800 cal./mole.

G. M. Kosolapoff

MANKASH, E. K.

ment rapidly loosens when the temp. increases. X. Diffusion of phenol in polyamide films and fibers. E. K. Mankash and A. B. Pakshver (Inst. Chem. Technol., Ivanovo). *Kolloid. Zhur.* 16, 401–4(1954); cf. *C.A.* 49, 2821d.—Capron (III) fibers sorbed, e.g., 17 mg. PhOH/g. III from 0.005% aq. soln., and III films took up, e.g., 21 mg. PhOH from 0.3% soln. After treatment with PhOH the sorption was greater, and after treatment with liquid petrolatum, less than for untreated III. Diffusion coeff., *D*, for movement of PhOH into dry III fibers was reduced by heating or stretching the fibers prior to diffusion; e.g., $D \times 10^{8}$ was 7.0 for untreated III from 0.03% soln. and for heated III from 0.5% soln. The *D* for steady diffusion of PhOH across a III film, 0.005 cm. thick, was 4×10^{-7} to 9×10^{-7} sq. cm./sec.; it was much greater than the *D* for the unsteady state because PhOH weakened the structure of III. (Part IX also in *Colloid J.* (U.S.S.R.) 17, 57–60(1955)(Engl. translation); part X also in *ibid.* 16, 429–32(1954)(Engl. translation).)

J. J. Bikerman

MANKASH, E. K.

(2)

Structure of high-molecular substances. VI. The rate of sorption of phenols by polyamide fibers. A. B. Peksiyev and E. K. Mankash. *Zhur. Prikld. Khim.* 27, 152-8 (1954); cf. *ibid.* 26, 686 (1953); *C.A.* 48, 3031*i*.—Polyamide fibers absorb PhOH and its derivs. (resorcinol, salicylic acid, tannin) as well as $CO(NH_2)_2$ and caprolactam by formation of hydrogen bonds. Thus for PhOH sorption the H of PhOH is attracted to the O of the CO group of the fiber, while the PhO is attracted to the NH link. The equil. amt. of sorption depends linearly on concn. of PhOH. Sorption by unstretched fiber is higher than that by a stretched fiber. The rate of sorption is detd. by the diffusion rate into the fiber and the diffusion coeffs. in descending order are: PhOH, resorcinol, salicylic acid, $CO(NH_2)_2$, tannin, and caprolactam. The coeffs. of diffusion increase with increase of concn. of the diffusing substances to a greater degree in unstretched fibers than in stretched ones. During the sorption the length of the fiber begins to change not immediately but after an induction period, although sorption of PhOH does begin immediately; the rate of change of the fiber dimensions is greater than the rate of sorption.

G. M. Kosolapoff

9-20-54

MANKASH, E. K

Kinetics of decomposition of cyclohexene in dependence on catalyst structure. E. K. Mankash and V. V. Shchekin. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1955, 1119–22; cf. Wheeler, *C.A.* 45, 8537*b*.—Cyclohexene was passed at 316° over aluminosilicate catalysts of the same compn. but having different surface structures (surface availability). The reaction rate can be used as a measure of the catalyst activity in this case by using the diffusion barrier const. k, given by $h = (L/r)^{0.5}\,(k/D_k)^{0.5}$, where h is a nondimensional parameter characteristic of the degree of diffusion hindrance, L is length of pores in the catalyst, r is their radius, and D_k is the Knudsen diffusion coeff. The reaction rate const. does not directly depend on the catalyst surface.

G. M. Kosolapoff

-MANKASH, YE. K.

Category USSR B-9

Abs Jour Zh--Kh, No 3, 1957, 7590

Author Mankash, Ye K , Molchanova, S I., and Shchekin, V. V.
Inst : Petroleum Institute of the Academy of Sciences USSR
Title : Investigation of the Aging of Silicate Catalysts During Heating and Treatment with Vapors by the Adsorption Method

Orig Pub Tr. In-ta Nefti AN SSSR, 1956, Vol 8, 120-130

Abstract The changes in surface structure, porosity, and activity of alumina silicate and magnesium-silicate catalysts prepared by different methods after heating to and vapor treatment at 750° has been investigated A marked decrease in specific surface area S and pore volume, and an increase in the average pore radius, as well as a decrease in the activity of the catalysts, were observed during the cracking of fuel oil at 450°. After heating

Card 1/2 40

Category USSR B-9

Abs Jour Zh--Kh, No 3, 1957, 7590

followed by treatment with vapors, S decreases, but the pore size remains almost unchanged Vapor treatment increases the activation energy from 8 200-10,000 to 15,300-16,400 cal/mole It has been noted that the decrease in the activity of the catalyst observed after vapor treatment is caused both by a decrease in S and by phase transformations

Card 2/2 -41-

MANKEVICH, Anatoliy Ivanovich; LUPACH,V.S., redaktor; SRIBNIS,N.V., tekhnicheskiy redaktor

[Red-banner Ladoga flotilla in the Great Patriotic War.] Krasnoznamennaia Ladozhskaia flotiliia v Velikoi Otechestvennoi voine. Moskva, Voen. izd-vo Ministerstva obor. SSSR, 1955. 102 p. (MLRA 9:4)

(Leningrad--Siege, 1941-1944)

BOGUN, Georgiy Sergeyevich; NIKIFOROV, Nikolay Nikolayevich; MANKEVICH, K.D., red.; BRODSKIY, Ya.Ye., red. izd-va; KARASEV, A.I., tekhn. red.

[Checking scrap metal for explosives] Kontrol' vtorichnykh metallov na vzryvobezopasnost'. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 109 p. (MIRA 14:12)
(Scrap metals)

1. MANKEVICH, L. A. : ABUKHOV, L. G.
2. USSR (600)
4. Woodwork
7. Rapid bending of wood by machinery. Der. i lesokhim. prom. 1 no.3. 1952.
9. Monthly List of Russian Accessions, Library of Congress, March 19 . Unclassified.

MANDEVICH, L. A.

Woodwork

Effect of hydrothermal treatment of lumber on waste during the bending on machines
Der. i lesokhim. prom 2 No. 3, 1953

Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

MANKEVICH, L.A., kandidat tekhnicheskikh nauk.

Increasing the productivity of steam tanks for rapid bending of wood on machines. Der. i lesokhim.prom. 3 no.10:3-5 O '54.(MLRA 7:11)

1. Belorusskiy lesotekhnicheskiy institut im. S.M.Kirova.
(Woodwork)

RATIN, N.A., dots., kand. tekhn. nauk; BIRYUKOV, V.A., dots., kand. tekhn. nauk; MANKEVICH, L.A., dots., kand. tekhn. nauk; GOLUBTSOVA, P., red.; KALECHITS, G., tekhn. red.

[Handbook of woodworking] Spravochnik po derevoobrabotke. Minsk, Gos. izd-vo BSSR, Red. nauchno-tekhn. lit-ry, 1958. 390 p. (MIRA 11:10)
(Sawmills) (Woodwork)

MANKEVICH, Lev Antonovich; NAYDOVICH, A.N., red.; BELEN'KAYA, I.Ye., tekhn. red. DUBOVIK, A.P., tekhn. red.

[Fundamentals of wood bending] Osnovy gnut'ia drevesiny. Minsk, Izd-vo M-va vysshego, srednego spetsial'nogo i professional'nogo obrazovaniia BSSR, 1961. 270 p. (MIRA 15:2)

(Woodwork)

NIKOL'SKIY, Yu.K.; MANKEVICH, O.I.

Calculation of the heridity of quantitative features of wheat amphidiploids by dispersion analysis. Biul. Inst. biol. AN BSSR no.6:239-244 '61. (MIRA 15:3)
(WHEAT BREEDING)

L 13088-63 BDS/EWT(d) AFFTC/AEGC/ASD Pg-4/Pk-4/Pl-4/Po-4/
Pq-4 IJP(c)/BC

ACCESSION NR: AP3002710 S/0245/63/000/003/0130/0133

AUTHOR: Zav'yalov, Ye. S.(Moscow); Kuz'minov, A.P. (Moscow); 80
Mankevich, V.I. (Moscow)

TITLE: Apparatus for recording motive and sensory acts of an operator in automatic and semi-automatic control systems

SOURCE: Voprosy psikhologii, no. 3, 1963, 130-133

TOPIC TAGS: automatic recording apparatus, test stand recording apparatus, control circuit, control system, test stand, operator, motive act, sensory act, detail reaction time, reaction time

ABSTRACT: In developing control systems it is often necessary to simulate the work of an operator on a test stand and to record in detail reaction time, movements, and certain psychological functions. The authors have developed a special automatic electronic apparatus which records such data and which can be connected to any test stand that operates electronically. The recording apparatus consists of the following units: two automatic voice devices, impulse camera RFK-5, electrotimer ESM-52, two delay circuits, selector for connecting to test stand, timer regulator, and a tape recorder.

Card 1/2

L 13088-63
ACCESSION NR: AP3002710

The timer switches on automatically with the last word of the experimenter's instructions and switches off when the operator responds verbally or performs the motion. The impulse camera which operates synchronously with the control impulses of the signal stimuli records timer readings, indicator readings, and control lever positions. The tape recorder contains all verbal instructions given by the experimenter and all verbal responses of the operator. On the basis of such data an operator's performance can be judged in terms of time and accuracy. The authors indicate that the apparatus has been used for a prolonged period and has proven to be highly reliable and convenient. Orig. art. has: 3 figures.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 16Jul63 ENCL: 00

SUB CODE: IE, SD NO REF SOV: 000 OTHER: 000

Card 2/2

L 31990-66 EWT(1) SCTB DD/GD
ACC NR: AT6012899 SOURCE CODE: UR/0000/65/000/000/0215/0228

AUTHOR: Volkov, A.A.; Denisov, V.G.; Kirilenko, Yu. I.; Mankevich, V.I.; Mel'nik, S.G.; Mikhaylovskiy, G.P.; Onishchenko, V.F.

ORG: none

57
B+1

TITLE: The structure of the command signal and the psychophysiological capabilities of an operator in control while subjected to G force

SOURCE: Sistema chelovek i avtomat (Man-automaton systems). Moscow, Izd-vo Nauka, 1965, 215-228

TOPIC TAGS: man machine communication, automatic control theory, human engineering, biologic gravity effect, flight physiology, psychologic stress

ABSTRACT: Circuits containing a man-operator as one of their elements are extensively used in modern control systems. The case studied involves the control of the pitch of an aircraft in descent prior to landing. An experimental investigation is made of the psychophysiological characteristics of an operator during control under conditions of G force acting in the chest-back direction. It is found that with a G force below a certain limit, the operator is capable of controlling angular and trajectory movements if he receives a single control command. The structure of the control command should be identical with the principle of control of an automatic system; furthermore, a correction should be made in the

Card 1/2

L 31990-66
ACC NR: AT6012899

command system, i.e., the dynamic properties of the operator should be corrected. Optimal structure of the control command may be selected by methods employed for automatic control systems. The quality of the control is considerably affected by its dynamic characteristics, by the preparation and the training of the operator, by perturbation factors, and by the organization of the working place of the man-operator. According to data obtained with the polyeffector method of recording physiological functions, an increase in G force acting on the man-operator leads to the execution of control functions which are unchanged in capacity at a high neuropsychic stress and at a lowered performance. The polyeffector method makes it possible to determine the neuropsychic activity of the operator under G force more fully. An objective evaluation of the processes employing the man-operator in the control circuit may be obtained as a result of analysis of the parameters of the motion dynamics of the controlled plant, the actions of the operator, and the degree of the operator's psychophysiological stress. Orig. art. has: 12 figures and 18 formulas. [08]

SUB CODE: 05 / SUBM DATE: 02Aug65 / ATD PRESS: 5021

Card 2/2 IC

MANKEVSKILL, G. I.

Tucks

978 TURBINE DRILLING OF BOREHOLES FOR FREEZING OPERATIONS. Mankevskill, G. I. (Ugol (Coal), Sept, 1953, 29-35). Tubrine drilling, which is much used in Soviet oil fields, was found superior to percussion and normal rotary drilling in speed and straightness of hole. It is recommended for freezing operations during working of mine shafts. Its use is described fully. (L).

Fuel Abstr.
Vol. XV No. 2
Feb. 1954
Natural Solid
Fuels: Winning

5-27-54
GJP

MANKHER, D., inzh.; MANKHER, L., inzh.

Calculating the mechanical properties of steel wire. Stal' 20 no.6: 569-571 Je '60. (MIA 14:2)

1. Shal'gotaryanskiy stalenoprokatnyy zavod, Vengerskaya Narodnaya Respublika.

(Hire)

S/137/62/000/012/038/085
A006/A101

AUTHORS: Mankher, György, Mankher, Lajos

TITLE: Investigating the mechanical properties of tension steel wire in relation to increased yield limits

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1962, 63 - 64 abstract 12I379 ("Kohász lapok", 1962, v. 95, no. 7, 316 - 322, Hungarian; summaries in Russian, German and English)

TEXT: The authors concluded from experiments that an increase in σ_s / σ_b should not take place until the appearance of brittleness. Tension steel must have high σ_{b1} and high σ_{02} and $\sigma_{0.01}$. The proper selection of the artifical aging method makes it possible to rise σ_b, σ_{02} and $\sigma_{0.01}$ jointly or separately. If the preliminary stress values are properly selected, $\sigma_{0.01}$ and $\sigma_{0.2}$ can be increased over the initial value.

Author's summary

[Abstracter's note: Complete translation]

Card 1/1

MANKHER, Gyorgy; MANKHER, Lajos

Steel cable drawing with continuously reduded velocity and its effect on quality. Muszaki kozl MTA 31 no.1/4:281-296 '62.

1. Salgotarjani Acelarugyar, Salgotarjan.

MANKHER, L.

R. T. R.
V. 3 No. 3
Mar. 1954
Metals - Mechanical and physical properties

3822* **Defects of Surface and Quality of Steel Wire.** (Hungarian.) Lajos Mankher. *Kohaszati Lapok*, v. 8, no. 11, Nov. 1953, p. 225-239.

Discusses conditions to be fulfilled by basic material as well as mechanical and technological properties of drawn wire resulting from structural changes taking place during processing. Photographs, micrographs.

MANKHER, L.-A.S.

14240* Some Problems of Wire Drawing. A dróthúzás egyes kérdéseiről. (Hungarian.) Lajos Mankher. *Kohászati Lapok*, v. 10, no. 7, July 1955, p. 295-307, 4 plates.
Factors effecting quality; optimum drawing conditions; conditions conducive to defects. Tables, graphs. 8 ref.

MG

MANKHER, L.

TECHNOLOGY

PERIODICAL: MELYEPITESTUDOMANYI SZEMLE. Vol. 8, no. 8/9, Aug./Sept. 1958

Mankher, L. Steel wire for prestressed concrete. p. 370.

Monthly list of East European Accessions (EEAI) LC, Vol. 8, No. 2, February 1959, Unclass.

MANKHER, L.

Lubrication problems with high-speed steel-wire drawing. p.374

KOHASZATI LAPOK. (Magyar Banyaszati es Kohaszati Egyesulet)
Budapest, Hungary
Vol. 13, no.8, Aug. 1958

Monthly List of East European Accessions (EEAI) LC., Vol. 8, no.7, July 1959
Uncl.

MANKHER, L.

Determination of the tensile strength of patented and cold-drawn steel wire by computation. p.45.

MAGYAR TUDOMANYOS AKADEMIA. MUSZAKI TUDOMANYOK OSZTALYA. KOZLEMENYEI.
Budapest, Hungary. Vol. 24, no. 1/4, 1959.

Monthly List of East European Accessions. (EEAI) LC Vol. 9, no. 2,
Feb. 1960 Uncl.

MANKHER, D., inzh.; MANKHER, L., inzh.

Calculating the mechanical properties of steel wire. Stal' 20 no.6: 569-571 Je '60. (MIA 14:2)

1. Shal'gotaryanskiy staleprokatnyy zavod, Vengerskaya Narodnaya Respublika.

(Wire)

S/137/62/000/012/038/085
A006/A101

AUTHORS: Mankher, György, Mankher, Lajos

TITLE: Investigating the mechanical properties of tension steel wire in relation to increased yield limits

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1962, 63 - 64 abstract 12I379 ("Kohász lapok", 1962, v. 95, no. 7, 316 - 322, Hungarian; summaries in Russian, German and English)

TEXT: The authors concluded from experiments that an increase in σ_s / σ_b should not take place until the appearance of brittleness. Tension steel must have high σ_{b1} and high σ_{02} and $\sigma_{0.01}$. The proper selection of the artifical aging method makes it possible to rise σ_b, σ_{02} and $\sigma_{0.01}$ jointly or separately. If the preliminary stress values are properly selected, $\sigma_{0.01}$ and $\sigma_{0.2}$ can be increased over the initial value.

Author's summary

[Abstracter's note: Complete translation]

Card 1/1

MANKHER, Gyorgy; MANKHER, Lajos

Steel cable drawing with continuously reduced velocity and its effect on quality. Muszaki kozl MTA 31 no.1/4:281-296 '62.

1. Salgotarjani Acelarugyar, Salgotarjan.

MAN KIN, A N MAN'KIN, A. N. FD-3371

USSR/Chemistry - Chemical engineering, Valves

Card 1/1 Pub. 50 - 15/20

Authors : Mordkovich, B. I., Man'kin, A. N.

Title : An electromagnetic valve for switching over pneumatic lines

Periodical : Khim. prom. No 7, 432-433, Oct-Nov 1955

Abstract : The design and operation of the electromagnetic valve KE-2 are described. This valve is to be used for switching over the connections in pneumatic lines operating at an air pressure of 2 kg/cm^2 and expending air at a rate of 30 liters/min. It will be used for the automatic starting and stopping of control systems equipped with ordinary pneumatic control appliances (e g. the system in operation at the Vinnitsa Superphosphate Plant). The valve is distributed by the experimental production unit of VISP [All-Union Institute of Power Drives?], 10 Ulitsa Kibal'chicha, Khar'kov. Two figures.

Institution : Experimental Design Bureau of Automatics, Ministry of Chemical Industry

PA47T35

MAN'KIN, E. A.

Feb 1948

USSR/Electricity
Rectifiers, Mercury
Frequency Changers

"Frequency Tripler for Compensation of Extraneous Peak Characteristics in Mercury Arc Rectifier Installations," E. A. Man'kin, Candidate Tech Sci; N. N. Korsun, Engr, Moscow Transformer Factory imeni Kuybyshev, 2 pp

"Vest Elektro-Prom" No 2

In traction equipment voltage peaks not desirable as have an adverse effect on moving parts of the electric motor. Particularly hard on the tubes which burn out frequently.

47T35

Cand. of Tech. Sci

"Transformers for Heavy-Duty Rectifying Installations of MTZ Design," reported in the article "First all-Union Scientific and Technical Session on Mercury-Arc Rectifiers," Elektrichestvo, No. 11, 1949.

Abstract W-9395, 10 Apr 1950.

Subject : USSR/Electricity AID P - 4124

Card 1/2 Pub. 27 - 11/33

Author : Man'kin, E. A., Kand. Tech. Sci., Moscow

Title : Eddy current losses in transformer windings under a nonsinusoidal current.

Periodical : Elektrichestvo, 12, 48-52, D 1955

Abstract : The author demonstrates that under any non-sinusoidal current additional eddy current losses are higher than under a sinusoidal current with the same effective value. He studies the influence of the shape of the current wave on additional losses. This influence is of paramount importance in large transformers associated with rectifiers. The method used consists in measuring sinusoidal losses which are multiplied by a coefficient of increase of losses λ calculated for a given shape of the wave of the corresponding non-sinusoidal current. The author introduces formulas for λ and analyzes the accuracy of his method as applied to the windings of rectifying

Elektrichestvo, 12, 48-52, D 1955 AID P - 4124

Card 2/2 Pub. 27 - 11/33

transformers. Three tables, 4 diagrams, 7 references (1931-1946) (5 Soviet).

Institution : Moscow Transformer Plant

Submitted : F-23, 1955

AUTHOR: Man'kin, E.A. (Cand.Tech.Sci.) 110-7-16/30

TITLE: Stray-losses due to eddy currents in a three-winding transformer. (Dobavochnye poteri na vikhrevye toki v trekhobmotochnom transformatore.)

PERIODICAL: "Vestnik Elektropromyshlennosti" (Journal of the Electrical Industry), Vol.28, No.7, 1957, pp.57-60 (USSR).

ABSTRACT: In modern high output transformers stray load losses due to eddy currents in the windings and in massive metal parts are as much as 20-50% of the total I^2R losses. The stray losses are defined as the difference between the losses measured on short circuit tests and the losses calculated from the d.c. resistance of the windings. With the usual simplifying assumptions methods already exist for calculating the stray losses due to eddy currents in the windings of two-winding transformers. The determination of the stray losses in the windings of a three-winding transformer is somewhat more difficult. Fig. 1 illustrates two typical cases of load distribution in a three-winding transformer and the corresponding diagram of distribution of m.m.f. These diagrams may also be considered as diagrams of induction distribution. An expression is then derived analytically for the magnitude

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Stray-losses due to eddy currents in a three-winding transformer. (Cont.) 110-7-16/30

of the stray current density. The expression shows that the eddy currents may be considered as the sum of two components, one due to the field intensity set up by the current in the first winding, and the other correspondingly for the second winding. A further expression is then derived for the effective resulting current density. For practical calculations it is convenient to use a coefficient that characterises the ratio of the stray loss in winding 2 for some given three-winding condition, to the stray losses in the same winding for the two-winding condition, and with current equal to the primary current. An appropriate expression is derived and the final design formula is obtained. The various practical conditions that can arise are analysed and it is concluded that in the three-winding condition the stray losses are on an average greater than in the two-winding condition. The coefficient of increase is calculated by formula 12 depending on the distribution of current in the winding. There are 3 figures, no references.

Card 2/3

110-7-16/30

Stray-losses due to eddy currents in a three-winding transformer. (Cont.)

ASSOCIATION: Moscow Transformer Works. (Moskovskiy Transformatornyy Zavod).

AVAILABLE:

Card 3/3

MAN'KIN, E. A.

105-9-1/32

AUTHORS Nekrasov A.M., Engineer, Groys Ye.S., Engineer, Zelikin M.L., Engineer, Turetskiy V.Ye., Engineer, Man'kin E.A., Candidate of Technical Sciences.

TITLE The Transmission System Stalingrad Hydro-Electric Station-Donbass. (Elektroperedacha postoyannogo toka Stalingradskaya GES-Donbass - - Russian)

PERIODICAL Elektrichestvo, 1957, Nr 9, pp 1 - 1o (U.S.S.R.)

ABSTRACT The line still under construction will connect the Southern energy system with the Stalingrad hydro-electric station. In the case of a flood the energy will be transferred from Stalingrad to the Donbass and during seasonal fluctuations on the Wolga it will be arranged the reverse direction. The nominally fixed power is 75o MW. Four billion kW will be transferred in both directions yearly. The length of line is 47o km, the voltage is 8oo kV. The operation- and experimental results of the d.c.line Kashira-Moscow were of great importance for projecting. The design and operation of the power line is given. It is an eight-bridge scheme with earthing of the center of the d.c.part. The average rectified voltage of each bridge is 1oo kV. Single-phase transformers of 82 MVA were selected for this purpose. A net-speed-control is planned as well as shunt-valves for the liquidation of operational breakdowns. The change of direction of the energy transmission is arranged by means of a net-control and without any switching in the main system. The description of the insulation as well as of the overvoltage protection, the

Card 1/2

105-9-1/32

The Transmission System Stalingrad- Hydro-Electric Station -Donbass.

basic equipment of the transformer substations, their arrangement and the power line itself, which is constructed as open-air transmission-line, is given. Finally the technical economic indices as well as a comparison with an alternating line are given. The d.c. line is cheaper by almost 30% and has losses which are 2,5 times lower, The Stalingrad-Donbass line costs 0,9 Kop. per 1 kWh. The technical exonomic indices are practically the same in both cases. There are 4 tables,1o illustrations and 9 Slavic references.

ASSOCIATION Technical Direction of MES.-Scientific Research Institute for Direct-Current.- Moscow Transformer Factory.
(Tekhnicheskoye upravleniye MES.- Nauchno-issledovatel'skiy institut postoyannogo toka.- Teploelektroproyekt.-Moskovskiy transformatornyy zavod.)
SUBMITTED January 18, 1957
AVAILABLE Library of Congress.
Card 2/2

8(3)
AUTHOR: Man'kin, E. A., Candidate of Technical Sciences

SOV/105-59-7-9/30

TITLE: Calculation of Chokes With a Steel Core and Air Gaps (Raschet reaktorov so stal'nym magnitoprovodom i zazorami)

PERIODICAL: Elektrichestvo, 1959, Nr 7, pp 35 - 41 (USSR)

ABSTRACT: Chokes with round coils and a core with air gaps are investigated. For the characterization of choke dimensions it is convenient to base upon the conception of type efficiency, i.e. the efficiency of series-produced transformers of the same insulation (voltage) class with about the same dimensions as the choke under investigation. Formula (1) for the single-phase choke and formula (2) for the soothing choke are given for the purpose of calculating type efficiency. Figure 1 shows a section through the choke and the distribution of the induction lines of the magnetic field. The formulas necessary for calculating this distribution are written down. - Next, the general calculation course is shown. The geometric dimensions and the electric characteristics of the choke according to nominal inductivity and planned nominal amperage is then carried out with as little expenditure as possible for the working materials. According to the method described, calculation is

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Calculation of Chokes With a Steel Core and Air Gaps SOV/105-59-7-9/30

carried out in two stages. First, the length l_{gap} of a single air gap is calculated according to the type efficiency and such measurements as have proved to be the most favorable in practice. There follows an exact calculation, in the course of which all geometric dimensions of the choke are calculated, followed by a correction of the number of windings, by which planned activity is warranted. The results obtained by calculations carried out by the given methods agree tolerably well with those obtained by means of experiments, as is shown by an example. Finally, the range for a rational use of the choke with a steel core is investigated. Figure 5 shows the dependence of the limiting output of the choke on the multiplicity factor of the short-circuit current in form of a diagram. Below the curve a choke with a steel core is less expensive, and above it, an air-core choke is more economical [air-core choke, according to Hint D 752, page 792]. There are 6 figures.

ASSOCIATION: Moskovskiy transformatornyy zavod (Moscow Transformer Works)

SUBMITTED: December 20, 1958

Card 2/2

32234
S/196/61/000/011/026/042
E194/E155

9,2120 (1147,1482)

AUTHOR: Man'kin, E.A.

TITLE: Prospects of building transformers of extreme output and voltage for d.c. transmission

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.11, 1961, 10, abstract 11I 74. (Izv. N.-i. in-ta postoyan. toka, no.6, 1960, 63-79)

TEXT: The main factors are considered that govern the physical dimensions, technical-economic characteristics, special features and methods of constructing transformers of extremely high output and voltage for long-distance d.c. transmission lines. A comparative assessment is given of characteristics of transformers for d.c. and a.c. transmission. It is found that: 1) a d.c. transmission scheme rated at 2400 MW per circuit with a voltage of ± 700 - 750 kV relative to earth, with a transformer wound for 500 kV at 50% output, raises construction difficulties which, however, are not insuperable, and there are real possibilities of building such transformers in the next 10 years.

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32234
S/196/61/000/011/026/042
E194/E155

Prospects of building transformers ...

2) Transformers for an a.c. transmission line voltage of 700 - 750 kV require an appreciably higher insulation level than for the d.c. variant, but there are also real prospects of constructing such transformers with an output of the order of 240 MVA per phase in the next 10 years. 3) The cost of step-up transformers of both types is about equal, but in stepping-down the transformer for the a.c. scheme is some 10% cheaper. 3 illustrations. 5 literature references.

[Abstractor's note: Complete translation.]

Card 2/2

MAN'KIN, E.A., kand.tekhn.nauk

Testing of the heating of transformers feeding six-phase rectifiers.
Vest. elektroprom. 34 no.4:31-32 Ap '63. (MIRA 16:10)

ALEKSENKO, G.V.; SYROMYATNIKOV, I.A.; NEKRASOV, A.M.; KRIKUNCHIK, A.B.; RABINOVICH, S.I.; CHUSOV, P.P.; CHERTIN, A.M.; BULGAKOV, N.I.; BRITCHUK, V.V.; MAN'KIN, E.A.; PANOV, A.V.; SAPOZHNIKOV, A.V.; SAGALOV, M.I.; VOYEVODIN, I.D.; ANTONOV, I.A.; KALINICHENKO, I.S.; KRAYZ, A.G.

L.M. Shnitser; on his 75th birthday. Elektrichestvo no.11:87-88 N '63. (MIRA 16:11)

MANKIN, E.A., kand. tekhn. nauk; MOROZOV, D.N., kand. tekhn. nauk; NIFFRO, A.V., inzh.

Additional losses in power transformer cores during short-circuit tests. Elektrichestvo no.12:31-37 D '64.
(MIRA 18:12)

1. Vsesoyuznyy ordena Lenina elektrotekhnicheskiy institut im. V.I. Lenina.

MAN'KIN, E.A.

System of standards for transformer equipment. Standartizatsiia 28 no.2:24-27 F '64. (MIRA 17:3)

L 22594-65 EWT(d)/EWP(k)/EWP(l)

ACC NR: AP6012999 SOURCE CODE: UR/0105/65/000/006/0090/0090

AUTHOR: Alekseyenko, G. V.; Borisenko, N. I.; Voyevodin, I. D.; Drozdov, N. G.; Krayz, A. G.; Man'kin, E. A.; Mayorets, A. I.; Nekrasov, A. M.; Nayashkov, I. S.; Pavlenko, A. S.; Rokotyan, S. S.; Sobolev, A. A.; Syromyatnikov, I. A.; Sapozhnikov, A. V.; Sarkisov, M. A.; Chernichkin, D. S.; Chertin, A. M.

ORG: none

TITLE: S. I. Rabinovich (on the occasion of his 60th birthday)

SOURCE: Elektrichestvo, no. 6, 1965, 90

TOPIC TAGS: electric engineering personnel, electric transformer, hydroelectric power plant

ABSTRACT: The chief specialist of transformer building of the Gosplan (State Planning Commission) USSR, Samuil Isaakovich Rabinovich was born in 1905 in the town of Borisoglebsk of the Voronezh Oblast'. From his student years at the Gosudarstvennyy elektromashinostroitel'nyy institut (State Machine-Building Institute) he already showed interest for power transformers. In the early thirties he designed the first types of domestic Soviet 110 and 220 kV transformers; in 1939 he became the chief designer of the Moskovskiy transformatornyy zavod (Moscow Transformer factory). In 1946, he conducted the design and construction of lightning-resistant transformers; during 1949-1954,

Card 1/2 UDC: 621.314(092)

L 22594-66
ACC NR: AP6012999

he headed the design of the 400 kV transformer equipment for the Volzhskaya hydroelectric power station - Moscow power line; his subsequent work on the 500 kV equipment earned him the Lenin prize. From 1960, he has been working at the Gosplan USSR. He is also a member of the editorial board of the journal Elektrichestvo (Electricity). Orig. art. has: 1 figure. [JPRS]

SUB CODE: 10, 09 / SUBM DATE: none

Card 2/2 fal

MAN'KIN, E.A., kand.tekhn.nauk; MOROZOV, D.N., kand.tekhn.nauk; ALFEROVA, A.V., inzh.

Distribution of leakage flux and additional losses in the cores of large transformers under load conditions. Elektrichestvo no.9:68-70 S '65. (MIRA 18:10)

1. Vsesoyuznyy elektrotekhnicheskiy institut im. Lenina.

MAN'KIN, E.A., kand.tekhn.nauk; MOROZOV, D.N., kand.tekhn.nauk; ALFEROVA, A.V., inzh.

Additional eddy current losses in transformer windings. Elektrotekhnika 36 no.10:16-19 O '65. (MIRA 18:10)

MAN'KIN, [illegible] kand. tekhn. nauk; [illegible], kand. tekhn. nauk

New sed standard on methods for testing power transformers.
Elektrotekhnika 35 no.5:21-24 My '64 (MIRA 17:8)

8(2,5)

SOV/112-58-3-3699

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1958, Nr 3, p 24 (USSR)

AUTHOR: Bunkin, V. I., Man'kin, M. N., and Shlyanov, A. I.

TITLE: Adjusting the Controls of LMZ Type AK-50-1 (TN-250) Turbines (Naladka regulirovaniya turbin LMZ tipa AK-50-1 (TN-250))

PERIODICAL: Naladochn. i eksperim. raboty ORGRES, 1956, Nr 13, pp 27-36

ABSTRACT: The turbine regulation system formerly worked poorly: under no-load conditions, the turbine had a runaway tendency and did not correctly respond to the synchronizer control. To eliminate these troubles, the radial gaps between pilot valves and their seats were reduced, new valve springs were mounted and their initial tension increased, window contours in the throttle valve and its shell were altered, etc. To increase the response speed of the regulating system on sudden loss of electric load, a new-design pilot valve with an additional internal oil overflow was installed. Recommendations on the method of adjusting and tuning up the regulating system for such turbines

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8(2,5)

SOV/112-58-3-3699

Adjusting the Controls of LMZ Type AK-50-1 (TN-250) Turbines

are given. Drawings of the new type of pilot vavle and axle box and sketches of the window shapes in the valve and its shell are presented, as well as specifications for the gaps in the governing and the steam-distributing systems.

L.S.M.

Card 2/2

MAN'KIN, N. F.

MAN'KIN, N. F. "The treatment of poorly healing wounds and [illegible] wartime", Trudy Smol. gos. med. in-ta, Vol. II, 1[illegible], p. 178-82.

SO: U-4393, 19 August 53, (Letopis 'Zhurnal 'nykh Statey', No. 22, 1[illegible].

BELOSTOTSKIY, Ye.M. [deceased]; AVETISOV, E.S.; MAN'KIN, S.N.; TAMAROVA, R.M.

Fixation ophthalmoscope, a new apparatus for the treatment of amblyopia. Vch.zap. GNII glaz.bol. no.7:221-226 '62. (MIRA 16:5)

1. Iz Gosudarstvennogo nauchno-issledovatel'skogo instituta glaznykh bolezney imeni Gel'mgol'tsa i Vsesoyuznogo nauchno-issledovatel'skogo instituta meditsinskogo instrumentariya i oborudovaniya.

(OPHTHALMOSCOPE) (AMBLYOPIA)

LAN'KIN, I.F., Cand Med Sci -- (diss) "Data on the problem of the pathogenesis and clinic of toxic forms of dysentery in young children." Frunze, 1959. 32 pp (Min of Health Kirgiz SSR. Kirgiz State Med Inst). 210 copies (KL,37-59, 111)

75

MAN'KINA, I. F., Cand Med Sci (diss) -- "Material on the problem of the pathogenesis and clinical treatment of toxic forms of dysentery of young children". Frunze, 1960. 31 pp (Min Health Kirgiz SSR, Kirgiz State Med Inst), 250 copies (KL, No 15, 1960, 140)

MANKINA, I. P.; BAYANOVA, M. G.; FEDOTOV, P. V.

"Types of Diphtheria Cultures in Material From the Town of Frunze and Their Connection to the Clinical Course of the Disease," Trudy Instituta Epidemiologii i Mikrobiologii Ministerstva Zdravookhraneniya Kirgizskoy SSR, Frunze, Vol 1, 1951, pp 28, 29.

AID P - 1325

Subject : USSR/Engineering

Card 1/1 Pub. 110-a - 7/19

Authors : Kostrikin, Yu. M., Kand. of Tech. Sci. and Man'kina, N. N.

Title : Formation of copper scales in steam boilers

Periodical : Teploenergetika, 2, 32-34, F 1955

Abstract : The results of investigation are analyzed concerning the composition of "copper" scales in steam boilers that is, deposits of metallic copper with some additions of oxides of iron, and conditions under which they form. Some ways are indicated to avert the depositing of copper on highly heated sections of the heating surface. To achieve this, the addition to the feed-water of ingredients which with the copper content form more stable complex compounds (polyamines, metaphosphates, etc.), is suggested. Charts.

Institution : All-Union Heat Technical Institute

Submitted : No date

MAN'KINA, N.N

AID P - 5104

Subject : USSR/Engineering

Card 1/1 Pub. 110-a - 7/18

Authors : Man'kina, N. N., M. D. Loginov, and T. A. Sashina, Engineers.

Title : Prevention of the formation of copper scum by using sodium hexametaphosphate.

Periodical : Teploenergetika, 10, 33-36, O 1956

Abstract : Methods are examined for slowing down and preventing the formation of copper scum on pipes of steam boilers. 5 diagrams. 3 references.

Institution : All-Union Heat Engineering Institute

Submitted : No date

MAN'KINA, N. N., Cand Tech Sci -- (diss) "Study of the process of formation of 'copper scales.'" Mos, 1958. 14 pp (Min of Electr. Power Stations USSR, All-Union Order of Labor Red Banner Heat Engineering Inst Sci Res Inst im F. E. Dzerzhinskiy), 110 copies (KL, 16-58, 120)

AUTHOR: Man'kina, N.N. (Cand.Tech.Sci.) SOV-96-58-12-2/18

TITLE: Scale formation in steam boilers with multiple circulation (Nakipeobrazovaniye v parovykh kotlakh s mnogokratnoy tsirkulyatsiyey)

PERIODICAL: Teploenergetika, 1958, No.12, pp. 12-18 (USSR)

ABSTRACT: Scales that form in boilers may be classified into four main groups; alkaline earth, copper, iron and aluminium. Because of the good water-softening treatments now available, deposits of calcium and magnesium are rarely encountered in modern boilers. The mechanism of copper scale formation is briefly discussed. The porous deposit of copper is gradually filled up with deposits of iron, calcium phosphate and magnesium compounds. The copper content is, therefore, always highest in the layers of scale nearest to the water. Analyses of copper scales from a number of boilers are given in Table.1. Copper contents of the order of 80% in the outer layers and 20% in the inner layers are typical. The rate of copper scale formation is governed by the thermal loading on the heating surfaces and on the local concentration of copper ions, and does not depend on the total concentration of copper in the boiler water. Sodium hexametaphosphate reduces the rate of copper scale formation by a factor of about 20 as compared with that absorbed under trisodium-phosphate conditions. At a number of power stations the use of hexametaphosphate instead of trisodiumphosphate has completely prevented the formation of scale-containing copper. The main cause

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of formation of deposits of iron phosphate is either high phosphate concentration in the second and third evaporation stages of the boiler, or reduced alkalinity of the boiler water. The deposits are then formed preferentially in the salty sections of the boiler. The appearance and mode of formation of the deposits is described. The formation of iron phosphate scale has been observed at a number of power stations and is usually a consequence of badly organised phosphate treatment. The characteristics of iron phosphate scales are given in Table.2. Scale of this kind can form very quickly and boilers with abnormal phosphate conditions have been known to go out of service after 6 hours. To avoid iron phosphate scale formation the phosphate number should not be allowed to exceed 130-150 mg/litre PO_4^{3-}. It is particularly necessary to watch the water alkalinity when sodium hexametaphosphate or disodiumphosphate is used. Iron oxide deposits are due largely to high local thermal loading of the heating surfaces with a concentration of iron in the boiler water. Examples of the occurrence of such deposits are described and the characteristics of iron oxide scales are given in Table.3. The deposits are often very local at places of high thermal load. To prevent the formation of such deposits the iron content of the boiler water must be carefully supervised as 0.1-0.2 mg/litre is sufficient to cause trouble. The main sources of iron are drainage tanks and the like,

particularly those which are used only periodically. The formation of this type of deposit can be greatly reduced or prevented by adding to the boiler water substances that form stable complexes with iron. For this purpose, tests should be made with sodium hexametaphosphate, sodium pyrophosphate, sodium fluoride, oxalic acid and a number of organic substances. There are 3 tables and 6 Soviet references.

ASSOCIATION: All-Union Thermo-Technical Institute (Vsesoyuznyy Teplotekhnicheskiy Institut)

SOV/96-59-2-13/18

AUTHORS: Man'kina, N.N., Candidate of Technical Sciences
Przhiyalkovskiy, M.M., Candidate of Technical Sciences
Bulavitskiy, Yu.M., Engineer
Petrova, I.N., Engineer

TITLE: The Formation of Iron Oxide Deposits in Steam Boilers with Multiple Circulation (Obrazovaniye zhelezookisnykh nakipey v parovykh kotlakh s mnogokratnoy tsirkulyatsiyey)

PERIODICAL: Teploenergetika, 1959, Nr 2, pp 79-83 (USSR)

ABSTRACT: Most of the damage to screen and boiling tubes of high-pressure steam boilers is caused by deposits of iron oxide on the internal surfaces of the tubes. Such deposits are found in boilers operating at different pressures but the damage always occurs in areas of highest thermal loading. For example in boilers type TP-170 iron oxide deposits have caused damage at the points indicated in Fig 1 where the flame temperature is highest and the local thermal loadings are greatest. Similar damage has been observed in other stations operating at a pressure of 60 atm. In the boiler type TP-170 the iron content of the feed water was somewhat

The Formation of Iron Oxide Deposits in Steam Boilers with Multiple Circulation

too high. After a number of stations had been examined it was considered that the rate of deposit formation is governed by the thermal loading on particular parts of the heating surface. To verfy this point measurements were made on a boiler type TP-170 burning solid fuel. Thermal loading measurements were made on a number of tubes of the left side screen located as shown in Fig 1. For this purpose, several of the screen tubes were removed from the boiler and calorimetric tubes were installed in their place. By measuring the flow of water and its temperature at various points in the height of each tube it was possible to determine the amount of heat received by each section of the tube, the method has been described in Teploenergetika, 1956, Nr 6. The tubes that were removed and replaced by calorimetric tubes were cut up into lengths of 1 to 1.5 m and split lengthways for examination. As a result of the investigations it was established that the rate of formation of iron oxide deposits is indeed much affected by the magnitude of the thermal loading on the

The Formation of Iron Oxide Deposits in Steam Boilers with Multiple Circulation

heating surface. Curves of rate of deposit formation and of thermal loading at different places along the length of the tube taken from different parts of the boiler are given in Fig 2, 3 and 4 and the close relationship between the shapes of the two kinds of curves will be noticed. It was also found that the rate of deposit formation depends on the total concentration of iron in the boiler water. Iron oxide deposits form faster in the salty sections of boilers and almost all cases of damage have occurred there. There is some reason to suppose that the rate of deposit formation is roughly proportional to the iron content of the water at such values of iron content as are normally encountered. The deposits mostly consist of magnetite Fe_3O_4 and 70 to 90% of the deposits consists of iron oxide. Small quantities of metallic copper are also found in deposits at places of particularly high thermal loading. It is considered that most of the iron that enters the boiler in solution reappears in the

The Formation of Iron Oxide Deposits in Steam Boilers with Multiple Circulation

form of deposits and, therefore, by measuring the iron content of feed water, boiler water and blow-down an iron balance could be established which should reveal whether deposit formation is occurring or not. Most of the iron oxides in alkali boiler water can be centrifuged or filtered out, though some pass a filter of 10 micron pore size. The iron oxide particles are considered to be positively charged. It has been suggested elsewhere that there is a high concentration of electrons at places of high rate of heat transfer and this attracts the positively charged iron particles. Reduction in the iron content of the feed water helps to reduce the rate of deposit formation but cannot stop it. It may be possible to made the iron oxides in the water soluble by the use of substances that form soluble complexes with iron. This method has not yet been tried and considerable experimental work would first be required. By increasing the pH value of the water or by introducing into the boiler water substances that change the structure of the adsorption layer of colloidal

The Formation of Iron Oxide Deposits in Steam Boilers with Multiple Circulation

particles it might be possible to control the sign of the charge on the colloidal particles of iron oxide so that they would not form deposits. There are 6 figures and 10 Soviet references.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy Institut i Kiyevenergo (All-Union Thermo-Technical Institute and Kiyevenergo)

Card 5/5

MAN'KINA, N.N., kand.tekhn.nauk

Formation of scale in high-pressure steam boilers. Bezop.truda v prom. 3 no.8:20-21 Ag '59. (MIRA 12:11)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Boilers--Incrustations)

MAN'KINA, N.N., kand.tekhn.nauk

Investigating the condtitions of iron oxide scale formation.
Teploenergetika 7 no.3:8-12 Mr '60. (MIRA 13:5)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Iron oxide) (Pipe--Corrosion)

SOBOLEV, B.N.; KOSTRIKIN, Yu.M., kand.tekhn.nauk; MAN'KINA, N.N., kand. tekhn.nauk

Reaction of hydrazine with iron oxides. Teploenergetika 7 no.6: 92 Je '60. (MIRA 13:8)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Hydrazine) (Iron oxides)

MAN'KINA, N.N., kand.tekhn.nauk; TKACHENKO, A.G., inzh.; BUYNOVSKAYA, L.G., inzh.

Method of detecting the formation of iron oxide deposits on the inner heating surfaces of high-pressure boilers. Teploenergetika 7 no.9:30-34 S '60. (MIRA 14:9)

1. Vsesoyuznyy teplotekhnicheskiy institut i Kiyevenergo.
(Iron oxides) (Boilers--Incrustations)

KALUZHSKAYA, T.M., inzh.; MEYYER, L.A., inzh.; MAN'KINA, N.N., kand. tekhn.nauk

Entrance of ferric oxide into boilers and methods for preventing incrustations. Elek. sta. 31 no.9:6-10 S '60. (MIRA 14:10)
(Boilers--Incrustations)
(Feed water purification)

MAN'KINA, N.N., kand.tekhn.nauk; MEYYER, L.A., inzh.; KALUZHSKAYA, T.M., inzh.

Industrial checking of the use of hydrazine to control the formation of ferric oxide. Teploenergetika 8 no.6:62-64 Je '61. (MIRA 14:10)

1. Vsesoyuznyy teplotekhnicheskiy institut i Gor'kovskoye energoupravleniya.

(Hydrazine) (Feed-water prufication)

MAN'KINA, N.N., kand.tekhn.nauk; SOBOLEV, B.N., tekhnik

Mechanism of the hydrazine effect on the process of ferric oxide scale formation. Teploenergetika 9 no.3:48-50 Mr '62. (MIRA 15:2)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Boilers--Incrustations) (Hydrazine)

MAN'KINA, N.N., kand.tekhn.nauk

Conditions for sediment formation in the presence of a number of scale forming substances and methods for preventing such formations. Elek. sta. 33 no.2:13-16 F '62. (MIRA 15:3)
(Boilers--Incrustations)(Feed-water purification)

[illegible]K, E.P., inzh.; NADYROV, I.I., inzh.; MANTINA, N.N., kand.tekhn.nauk

Study of the zone and magnitude of deposits in a boiler with supercritical parameters. Teploenergetika 11 no. 1:45-49 Ja '64. (MIRA 17:5)

1. Vsesoyuznyy teplotekhnicheskiy institut.

AKOL'ZIN, P.A., doktor tekhn. nauk; PROKHOROV, F.G., kand. tekhn. nauk; MAN'KINA, N.N., kand. tekhn. nauk

Problem concerning the water cycle norms of thermal electric power plants. Teploenergetika 11 no.4:77-79 Ap '64. (MIRA 17:6)

1. Vsesoyuznyy teplotekhnicheskiy institut.

MAN'KINA, N.N., kand. tekhn. nauk

Networks for feeding hydrazine into feedwater and boiler water.
Teploenergetika 11 no.9:47-51 S '64. (MIRA 18:8)

1. Vsesoyuznyy teplotekhnicheskiy institut.

MAN'KINA, N.N., kand. tekhn. nauk; CHERNOVA, L.A., inzh.; RAYEVA, A.G., inzh.

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1. Vsesoyuznyy teplotekhnicheskiy institut.

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MAN'KINA, N.N., kand. tekhn. nauk

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MAN'KINA, N.N., kand. tekhn. nauk; MEYYER, L.A., inzh.;
KALUZHSKAYA, T.A., inzh.

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MANKINA, N.S.

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1. Iz khirurgicheskogo otdeleniya (zav. - N.S. Androsov) Murmanskoy oblastnoy bol'nitsy.
(INTESTINES--OBSTRUCTION) (INFANTS--SURGERY)

BAIROV, G.A., prof. (Leningrad, S-167, Ispolkomskaya ul., d.7, kv.4); MANKINA, N.S.

Intestinal obstruction caused by impaired intrauterine turn of the "midgut." Vest.khir. 89 no.11:81-89 N '62. (MIRA 16:2)

1. Iz kafedry khirurgii detskogo vozrasta (zav. - prof. G.A. Bairov) Leningradskogo pediatricheskogo meditsinskogo instituta (rektor - Ye.P. Semenova).
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MANKINA, N. S.

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1. Iz kafedry khirurgii detskogo vozrasta (zav. - doktor meditsinskikh nauk G. A. Bairov) Leningradskogo pediatricheskogo meditsinskogo instituta.

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MANKINA, N.S.

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1. Iz kafedry khirurgii detskogo vozrasta (zav. - prof. G.A. Bairov) Leningradskogo pediatricheskogo meditsinskogo instituta.

BAIROV, G.A., prof.; [illegible]

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1. Iz kafedry khirurgii detskogo vozrasta (zav. - prof. G.A. Bairov) i kafedry rentgenologii i radiologii (zav. - prof. Ya.L. Shik) Leningradskogo pediatricheskogo meditsinskogo instituta (rektor - dotsent Ye.P. Semenova). Adres avtorov: Leningrad, K-140, Litovskaya ul. 2, kafedra khirurgii detskogo vozrasta.